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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/930,449	10/07/1997	HIROYUKI ABE	JAO-39514	3024

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EXAMINER

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 09/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

08/930,449

Applicant(s)

ABE ET AL.

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-63 is/are pending in the application.
- 4a) Of the above claim(s) 19,24,29,34,39,44,45 and 50-55 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-18,20-23,25-28,30-33,35-38,40-43 and 63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 25.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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### **R sponse to Amendm nt**

Applicants' amendment filed July 11, 2002 has been entered on July 22, 2002. Therefore claims 1, 12, 20, 25, 30, 35, 40, and 56 as amended by the amendment and claims 4 to 11, 13-18, 21-23, 26-28, 31-33, 36-38, 41-43 47-49 and 63 as previously recited are currently pending in the application.

It is noted that Applicants' have amended claims 19 and 24 and incorrectly indicated them as being under consideration. These claims and their dependant claims are drawn to an apparatus, whereas the present claims under consideration are method claims and non-elected apparatus claims were restricted and not considered.

Therefore the present action will not consider the non-elected claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-18, 21-23, 25-28, 30-33 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cathey et al. (U.S. Patent No. 5,329,207 herein after Cathey) newly applied and Nakamura (U.S. Patent No. 5,200,630, herein after Nakamura)) previously applied.

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With respect to claims 1,12, 20, 25, 30 35 and 40 in addition to the teachings previously stated ( and incorporated here by reference for the sake of brevity) , the presently recited additional steps :

Crystallizing at least a surface layer of the thin film by applying energy through a window that exhibits transparency to the energy ( Nakamura col. 4 lines 59-64 reproduced below and Cathey Fig. 3D col.5 lines 63-65)

**Thereafter, hydrogen plasma is generated between the electrodes 55 and 56 and laser beams having a wavelength of 308 nm are irradiated onto the amorphous silicon 53 through the window 52 by the XeCl excimer laser 59 such that the amorphous silicon 53 is crystallized into polycrystalline silicon. Typical conditions for**

Therefore for the laser to pass through the window and reach ( react ) with silicon the window has to exhibit transparency to the energy. (XeCl excimer laser).

Wherein a distance between the window and the thin film is more than about 20mm . . Nakamura as stated in the Office Action mailed on March 11, 2002 at least page 7 etc. describes the positioning (distance) between window and film , therefore without a showing of criticality or unexpected results obtained by the distance of 20mm it is obvious to have a distance of 20mm because it was previously done in the overlapping range as taught by Nakamura.

Dependant claims 2, 4-11,13-18, 21-23,26-28,31-33 and 36-38 were alleged to be allowable because they depend upon allegedly allowable independent claims 1,12, 20, 25, 30 35 and 40.

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However as shown above independent claims 1, 12, 20, 25, 30, 35 and 40 are not allowable therefore dependant claims 2, 4-11, 13-18, 21-23, 26-28, 31-33 and 36-38 are also not allowable and are rejected for reasons previously set out and those stated herein.

**B.** Claims 40-43, 46-49 and 56-63 are rejected under 35 U.S. C. 103 (a) as being unpatentable over Cathey et al. ( U.S. Patent No. 5,329,207 herein after Cathey) and Nakamura ( U.S. Patent No. 5,200,630 herein after Nakamura) and further in view of Japanese Patent No. 58-90722 ( herein after Japanese patent"722 ) for the reasons previously set out ( and incorporated by reference for the sake of brevity) and those stated below ( in response to Applicants' arguments section).

Therefore all outstanding claims under consideration have been rejected for reasons previously set out and those stated herein.

### ***Response to Arguments***

Applicant's arguments filed 7/22/02 have been fully considered but they are not persuasive for the following reasons :

It is noted that Applicants' throughout their amendment are dealing with references individually i.e. piecemeal analysis of the references, it has been held that one cannot show non obviousness by attacking references individually where, as here, the rejections are based on the combination of references . In re Keller, 2087 USPQ 871 ( CCPA 1981).

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Further more all of Applicants' arguments (identical to the present arguments) were also previously stated and found not persuasive and are repeated below for the sake of completeness.

Cathey teaches a relatively thick semiconductor substrate ( see O/A mailed 3/11/2002 pages 2and 3).

Cathey fails to teach energy applied through a window . The rejection is based on combined teachings of Cathey and Nakamura ( see fig. 6 of Nakamura).

Cathey does not teach a distance between widow and an object material . ( See Nakamura and rejection mailed 3/11/2002 page7).

Nakamura does not teach energy is applied through a window that exhibits transparency to the energy and the window is at a distance of 20mm from an object material. ( These limitations were added by the last amendment and see rejection above).

Cathey or Nakamura do not teach the position of the window relative to the film at a location resistant to the adherence of components of the thin film when the high energy is supplied to the thin film and the inherancy thereof . ( See O/A mailed 7/18/01 page 3).

Energy supplied at higher pressure than the pressure in the vicinity of the thin film ( see o/a mailed 3/11/02 page 8 , etc.).

Nakamura does not teach gas flow introduction approximately in the same direction as the irradiation path . ( see o/a/ mailed 3/11/02 page 10).

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Japanese Patent 58-90722 does not teach energy supplied through a window that exhibits transparency and is at a distance of 20mm ( rejection based ion combination of Cathey, Nakamura and Jp-58-90722 ; see above and Nakmura fig. 6).

Japanese Patent No. 58-90722 does not teach gas flow introduction approximately in the same direction as the irradiation path . ( see o/a/ mailed 3/11/02 page 10).

Japanese Patent No.. 58-90722 does not teach the high energy passes through the introduction window along a radiation path and travels along the irradiation path in the supply chamber (rejection based ion combination of Cathey, Nakamura and Jp-58-90722 ; see above and Nakmura fig. 6, etc. ).

The motivation for combining Cathey, Nakamura and Japanese Patent NO. 59-90722 is clearly set out on page 2 last two lines to page 11 lines 1-9 of the O/A mailed 11/17/1999 and page 11 of the O/A mailed 3/11/2002.

During high energy radiation part of the energy is introduced in to the chamber and part of it is reflected ( see o/a mailed 7/18/01 pages 5 and 8 ).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (703) 3065945. The examiner can normally be reached on 8.00 to 5.00.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 7463926 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 3067722.



Steven H. Rao

Patent Examiner

September 24, 2002.



JEROME JACKSON  
PRIMARY EXAMINER